REMARKS

The present Amendment amends claims 1, 5 and 6, leaves claims 7-9 and 13 unchanged, and cancels claim 3 and 10. Therefore, the present application has pending claims 1, 5-9 and 13.

Support for Amendments

The support for amendments to claims 1 and 5 find support, for example, in Fig. 20 and the description on page 36, line 6 to page 38, line 2 of the specification.

35 U.S.C. §103 Rejections

Claims 1-3 and 5-10 and 13 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,731,600 to Patel et al. ("Patel") in view of U.S. Patent No. 6,690,646 to Fichou et al. ("Fichou"). As previously indicated, claims 3 and 10 were canceled. Therefore, this rejection regarding claims 3 and 10 is rendered moot. This rejection regarding the remaining claims 1, 5-9 and 13 is traversed for the following reasons. Applicants submit that the features of the present invention, as now more clearly recited in claims 1, 5-9 and 13, are not taught or suggested by Patel or Fichou, whether taken individually or in combination with each other in the manner suggested by the Examiner. Therefore, Applicants respectfully request the Examiner to reconsider and withdraw this rejection.

Amendments were made to the claims to more clearly describe features of the present invention. Specifically, amendments were made to the claims to more clearly recite that the present invention is directed to a distribution server and a terminal device as recited, for example, in independent claims 1 and 5.

Claim 1

The present invention, as recited in claim 1, provides a distribution server. The distribution server includes an image data generating unit that generates a first image data fragment and a second image data fragment, which is a next fragment of the first image data fragment. The distribution server also includes a communication unit that transmits and receives data to and from a terminal through a communication path. The distribution server further includes a bit rate switching control unit that controls the image data generating unit to change an image bit rate. According to the present invention, the image data generating unit inserts a monitoring trigger information, which indicates a transmission start time of the second image data fragment, into the first image data fragment and inserts data size information, which indicates a data size of the second image data fragment, into the second image data fragment, for executing a receiving bit rate calculation in a receiving side by dividing the data size of the second image data fragment by an interval of time between the start time calculated based on the transmission start time and the end time detected based on the data size of the second image data fragment. Also according to the present invention, when the communication unit receives an image bit rate switching request command from the terminal which is generated based on the receiving bit rate calculation, the bit rate switching control unit controls the image data generating unit to change an image bit rate. The prior art does not teach or suggest all of these features.

The above described features of the present invention, as now more clearly recited in the claims, are not taught or suggested by any of the references of record. Specifically, the features are not taught or suggested by either Patel or Fichou, whether taken individually or in combination with each other.

Patel teaches a system and method for determining network conditions. However, there is no teaching or suggestion in Patel of the distribution server as recited in claim 1 of the present invention.

Patel discloses a system and a method for determining network conditions. The system includes a server computer and a client computer. The server computer is configured to transmit data packets comprising a data object from the server computer to the client computer. The client computer includes a transmission latency detector and a transmission bandwidth detector. The transmission latency detector uses transmission time and receipt time values to determine the changes in time it takes selected portions of the data object to be transmitted from the server computer to the client computer. The transmission bandwidth detector uses identified back-to-back data packets to determine the transmission bandwidth between the server computer and the client computer.

One feature of the present invention, as recited in claim 1, includes an image data generating unit that generates a first image data fragment and a second image data fragment, which is a next fragment of the first image data fragment.

Another feature of the present invention, as recited in claim 1, includes where the image data generating unit inserts monitoring trigger information, which indicates a transmission start time of the second image data fragment, into the first image data fragment and inserts data size information, which indicates a data size of the second image data fragment, into the second image data fragment, for executing a receiving bit rate calculation in a receiving side by dividing the data size of the second image data fragment by an interval of time between the start time calculated based on the transmission start time and the end time detected based on the data

size of the second image data fragment. Patel does not disclose this combination of features.

In the present invention, a receiving bit rate calculation is executed, using an interval of time between the start time, which is calculated, based on the transmission start time, and the end time, which is detected, based on the data size of the second image data fragment. In this way, an accurate denominator for the receiving bit rate calculation is provided. Accordingly a measurement accuracy of the receiving bit rate can be improved, and an accurate image bit rate switching control can be performed.

Patel discloses that the length of time between receiving the first data packet and receiving the second data packet is determined by a timestamp from the operating system, which executes on the client computer 112 (see, e.g., column 10, lines 49-57). However, Patel discloses that there is a problem that the timestamp from the operating system has inaccuracies caused by insufficient precision in time values provided by the operating system of the client computer 112 (see, e.g., column 11, lines 4-8). To solve this problem, Patel proposes multiple procedures for calculating the maximum available transmission rate (see, e.g., column 11, lines 4-8).

Unlike Patel, the present invention does not require the use of multiple procedures. This is because the interval of time between the start time calculated, based on the transmission start time, and the end time detected, based on the data size of the second image data fragment, give an accurate denominator for the receiving bit rate calculation.

In the Office Action, the Examiner argues that Patel discloses that monitoring can occur at a percentage of transmission of the data object and a time interval may

be replaced with a size or percentage of transmission, citing column 13, lines 1-7. However, the cited text only mentions an occurrence frequency of a bit rate calculation because the "predetermined interval" described in Patel refers to an interval of bit rate calculation occurrences. Therefore, this description has no relation to the length of time between receiving the first data packet and receiving the second data packet determined by a timestamp from the operating system (see, e.g., column 10, lines 49-57).

Therefore, Patel fails to teach or suggest "an image data generating unit that generates a first image data fragment and a second image data fragment, which is a next fragment of said first image data fragment" and "wherein said image data generating unit inserts a monitoring trigger information, which indicates a transmission start time of said second image data fragment, into said first image data fragment and inserts data size information, which indicates a data size of said second image data fragment, into said second image data fragment, for executing a receiving bit rate calculation in a receiving side by dividing said data size of said second image data fragment by an interval of time between the start time calculated based on said transmission start time and the end time detected based on said data size of said second image data fragment" as recited in claim 1.

The above noted deficiencies of Patel are not supplied by any of the other references of record, namely Fichou, whether taken individually or in combination with each other. Therefore, combining the teachings of Patel and Fichou in the manner suggested by the Examiner still fails to teach or suggest the features of the present invention as now more clearly recited in the claims.

Fichou teaches a network capacity planning based on buffers occupancy monitoring. However, there is no teaching or suggestion in Fichou of the distribution server as recited in claim 1 of the present invention.

Fichou discloses a method and a system of network capacity planning for use in a high speed packet switching network. The network includes a plurality of switching nodes interconnected through a plurality of communication links, where each of the switching nodes includes means for switching packets from at least one input link to at least one output link. Each of the output links is coupled to at least one buffer in the switching node for queuing packets before they are transmitted over the output link. In each of the switching nodes and for each of the output links, a time distribution of the occupancy of each buffer during a predetermined monitoring time period is measured, and stored in a centralized memory location. Then, the buffer occupancy time distribution data are retrieved from the centralized memory location in all the switching nodes, gathered and stored in a network dedicated server. These buffer occupancy time distribution data for all the nodes are transmitted from the dedicated network server to a network monitoring center. In the network monitoring center, the buffer occupancy time distribution data are integrated on a larger time scale, and stored. Finally, the integrated buffer occupancy time distribution data are used to apply network capacity planning actions to the network resources.

One feature of the present invention, as recited in claim 1, includes an image data generating unit that generates a first image data fragment and a second image data fragment, which is a next fragment of the first image data fragment.

Another feature of the present invention, as recited in claim 1, includes where the image data generating unit inserts monitoring trigger information, which indicates

a transmission start time of the second image data fragment, into the first image data fragment and inserts data size information, which indicates a data size of the second image data fragment, into the second image data fragment, for executing a receiving bit rate calculation in a receiving side by dividing the data size of the second image data fragment by an interval of time between the start time calculated based on the transmission start time and the end time detected based on the data size of the second image data fragment. Fichou does not disclose this combination of features.

In the Office Action, the Examiner asserts argues that Fichou discloses that the end of the monitoring period is determined by data size information from the header, citing Fig. 5, item 515. However, as described in column 9, lines 63-65, the decision box 515 only tests whether the monitoring period T is completed or not. There is no teaching or suggestion in Fichou of where the period T depends on the data size from the header. Therefore, Fichou does not disclose where the end of the monitoring period is determined by the data size information from the header.

Therefore, Fichou fails to teach or suggest "<u>an image data generating unit that generates a first image data fragment and a second image data fragment, which is a next fragment of said first image data fragment</u>" and "<u>wherein said image data generating unit inserts a monitoring trigger information, which indicates a transmission start time of said second image data fragment, into said first image data fragment and inserts data size information, which indicates a data size of said second image data fragment, into said second image data fragment, for executing a receiving bit rate calculation in a receiving side by dividing said data size of said second image data fragment by an interval of time between the start time calculated</u>

based on said transmission start time and the end time detected based on said data size of said second image data fragment" as recited in claim 1.

Claims 5-9 and 13

The present invention, as recited in claim 5, provides a terminal device. The terminal device includes a communication unit that receives a first image data fragment and a second image data fragment, which is a next fragment of the first image data fragment, from a distribution server through a communication path. The terminal device also includes a reproducing unit that reproduces the received first image data fragment and the received second image data fragment. Also included in the terminal device is a monitoring unit that monitors a receiving bit rate of the received first image data fragment and the received second image data fragment. According to the present invention, the first image data fragment includes monitoring trigger information, which indicates a receiving start time of the second image data fragment. Also according to the present invention, the second image data fragment includes data size information, which indicates a data size of the second image data fragment. Furthermore, according to the present invention, the monitoring unit executes a receiving bit rate calculation by dividing the data size of the second image data fragment by an interval of time between the start time calculated based on the receiving start time and the end time detected based on the data size of the second image data fragment. Even further, according to the present invention, the communication unit sends distribution bit rate switching information to the distribution server for changing image bit rate in the distribution server, in response to a result of the receiving bit rate calculation. The prior art does not teach or suggest all of these features.

The above described features of the present invention, as now more clearly recited in the claims, are not taught or suggested by any of the references of record. Specifically, the features are not taught or suggested by either Patel or Fichou, whether taken individually or in combination with each other.

As previously discussed, Patel teaches a system and method for determining network conditions. However, there is no teaching or suggestion in Patel of the terminal device as recited in claim 5 of the present invention.

One feature of the present invention, as recited in claim 5, includes a communication unit that receives a first image data fragment and a second image data fragment, which is a next fragment of the first image data fragment, from a distribution server through a communication path.

Another feature of the present invention, as recited in claim 5, includes where the first image data fragment includes monitoring trigger information, which indicates a receiving start time of the second image data fragment, where the second image data fragment includes data size information, which indicates a data size of the second image data fragment, and where the monitoring unit executes a receiving bit rate calculation by dividing the data size of the second image data fragment by an interval of time between the start time calculated based on the receiving start time and the end time detected based on the data size of the second image data fragment. Patel does not disclose this combination of features.

As previously discussed, in the present invention, a receiving bit rate calculation is executed, using an interval of time between the start time, which is calculated, based on the transmission start time, and the end time, which is detected, based on the data size of the second image data fragment. In this way, an accurate denominator for the receiving bit rate calculation is provided. Accordingly a

measurement accuracy of the receiving bit rate can be improved, and an accurate image bit rate switching control can be performed.

Patel discloses that the length of time between receiving the first data packet and receiving the second data packet is determined by a timestamp from the operating system, which executes on the client computer 112 (see, e.g., column 10, lines 49-57). However, Patel discloses that there is a problem that the timestamp from the operating system has inaccuracies caused by insufficient precision in time values provided by the operating system of the client computer 112 (see, e.g., column 11, lines 4-8). To solve this problem, Patel proposes multiple procedures for calculating the maximum available transmission rate (see, e.g., column 11, lines 4-8).

Unlike Patel, the present invention does not require the use of multiple procedures. This is because the interval of time between the start time calculated, based on the transmission start time, and the end time detected, based on the data size of the second image data fragment, give an accurate denominator for the receiving bit rate calculation.

In the Office Action, the Examiner argues that Patel discloses that monitoring can occur at a percentage of transmission of the data object and a time interval may be replaced with a size or percentage of transmission, citing column 13, lines 1-7. However, the cited text only mentions an occurrence frequency of a bit rate calculation because the "predetermined interval" described in Patel refers to an interval of bit rate calculation occurrences. Therefore, this description has no relation to the length of time between receiving the first data packet and receiving the second data packet determined by a timestamp from the operating system (see, e.g., column 10, lines 49-57).

Therefore, Patel fails to teach or suggest "a communication unit that receives a first image data fragment and a second image data fragment, which is a next fragment of said first image data fragment, from a distribution server through a communication path", "wherein said first image data fragment includes monitoring trigger information, which indicates a receiving start time of said second image data fragment," "wherein said second image data fragment includes data size information, which indicates a data size of said second image data fragment," and "wherein said monitoring unit executes a receiving bit rate calculation by dividing said data size of said second image data fragment by an interval of time between the start time calculated based on said receiving start time and the end time detected based on said data size of said second image data fragment" as recited in claim 5.

The above noted deficiencies of Patel are not supplied by any of the other references of record, namely Fichou, whether taken individually or in combination with each other. Therefore, combining the teachings of Patel and Fichou in the manner suggested by the Examiner still fails to teach or suggest the features of the present invention as now more clearly recited in the claims.

As previously discussed, Fichou teaches a network capacity planning based on buffers occupancy monitoring. However, there is no teaching or suggestion in Fichou of the terminal device as recited in claim 5 of the present invention.

One feature of the present invention, as recited in claim 5, includes a communication unit that receives a first image data fragment and a second image data fragment, which is a next fragment of the first image data fragment, from a distribution server through a communication path.

Another feature of the present invention, as recited in claim 5, includes where the first image data fragment includes monitoring trigger information, which indicates

a receiving start time of the second image data fragment, where the second image data fragment includes data size information, which indicates a data size of the second image data fragment, and where the monitoring unit executes a receiving bit rate calculation by dividing the data size of the second image data fragment by an interval of time between the start time calculated based on the receiving start time and the end time detected based on the data size of the second image data fragment. Fichou does not disclose this combination of features.

As previously discussed, in the Office Action, the Examiner asserts argues that Fichou discloses that the end of the monitoring period is determined by data size information from the header, citing Fig. 5, item 515. However, as described in column 9, lines 63-65, the decision box 515 only tests whether the monitoring period T is completed or not. There is no teaching or suggestion in Fichou of where the period T depends on the data size from the header. Therefore, Fichou does not disclose where the end of the monitoring period is determined by the data size information from the header.

Therefore, Fichou fails to teach or suggest "<u>a communication unit that receives a first image data fragment and a second image data fragment, which is a next fragment of said first image data fragment, from a distribution server through a communication path</u>", "<u>wherein said first image data fragment includes monitoring trigger information, which indicates a receiving start time of said second image data fragment,</u>" "<u>wherein said second image data fragment includes data size information, which indicates a data size of said second image data fragment,</u>" and "<u>wherein said monitoring unit executes a receiving bit rate calculation by dividing said data size of said second image data fragment by an interval of time between the start time calculated based on said receiving start time and the end time detected based on</u>

said data size of said second image data fragment" as recited in claim 5.

Both Patel and Fichou suffer from the same deficiencies, relative to the features of the present invention, as recited in the claims. Therefore, combining the teachings of Patel and Fichou in the manner suggested by the Examiner does not render obvious the features of the present invention as now more clearly recited in the claims. Accordingly, reconsideration and withdrawal of the 35 U.S.C. §103(a) rejection of claims 1, 5-9 and 13 as being unpatentable over Patel in view of Fichou are respectfully requested.

The remaining references of record have been studied. Applicants submit that they do not supply any of the deficiencies noted above with respect to the references used in the rejection of claims 1, 5-9 and 13.

In view of the foregoing amendments and remarks, Applicants submit that claims 1, 5-9 and 13 are in condition for allowance. Accordingly, early allowance of claims 1, 5-9 and 13 is respectfully requested.

To the extent necessary, the applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, or credit any overpayment of fees, to the deposit account of MATTINGLY, STANGER, MALUR & BRUNDIDGE, P.C., Deposit Account No. 50-1417 (referencing Attorney Docket No. 501.43083X00).

Respectfully submitted,

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